

Initial Application Part I

Received: 02/11/2020

This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete

K8Q35-200211-C-1080

RECEIVED: 2/11/20	REVIEWER: BLL	TYPE: SWD	APP NO: pBL2004329759
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Geological & Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505

**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND
 REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Applicant: Solaris Water Midstream, LLC**OGRID Number:** 371643**Well Name:** Sims 8 SWD #1**API:** 30-025**Pool:** SWD; Devonian- Silurian**Pool Code:** 97869

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION
 INDICATED BELOW**

1) TYPE OF APPLICATION: Check those which apply for [A]

A. Location - Spacing Unit - Simultaneous Dedication

☐ NSL☐ NSP (PROJECT AREA)☐ NSP (PRORATION UNIT)☐ SD

B. Check one only for [I] or [II]

[I] Commingling - Storage - Measurement

☐ DHC☐ CTB☐ PLC☐ PC☐ OLS☐ OLM

[II] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery

☐ WFX☐ PMX☒ SWD☐ IPI☐ EOR☐ PPR**SWD-2371****2) NOTIFICATION REQUIRED TO:** Check those which apply.A. ☒ Offset operators or lease holdersB. ☐ Royalty, overriding royalty owners, revenue ownersC. ☒ Application requires published noticeD. ☒ Notification and/or concurrent approval by SLOE. ☒ Notification and/or concurrent approval by BLMF. ☒ Surface ownerG. ☒ For all of the above, proof of notification or publication is attached, and/or,H. ☐ No notice required**FOR OCD ONLY**☐ Notice Complete☐ Application
Content
Complete

3) CERTIFICATION: I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Whitney McKee

Print or Type Name

1-15-2020

Date

432-203-9020 ext 9005


Phone Number

whitney.mckee@solarismidstream.com

e-mail Address

Signature

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: Secondary Recovery Pressure Maintenance XXX Disposal Storage
Application qualifies for administrative approval? XXX Yes No
- II. OPERATOR: Solaris Water Midstream, LLC
ADDRESS: 907 Tradewinds Blvd., Suite B, Midland TX 79706
CONTACT PARTY: Whitney McKee PHONE: 432-203-9020 ext 9005
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? Yes XXX No
If yes, give the Division order number authorizing the project: _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- VIII. VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and ~~depth~~ the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- *XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Whitney McKee TITLE: Regulatory Specialist
SIGNATURE:  DATE: 1-15-2020
E-MAIL ADDRESS: whitney.mckee@solarismidstream.com
- XV. If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

Side 2

III. WELL DATA [See Addendum](#)

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE [See Addendum](#)

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.



January 15th, 2020

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Attn: Ms. Adrianne Sandoval, Director

Re: Application of Solaris Water Midstream, LLC to drill and permit for saltwater disposal
Slms 8 SWD Well #1, to be located in Section 8, Township 20 South, Range 36
East, NMPM, Lea County, New Mexico.

Dear Ms. Sandoval,

Please find the enclosed form C-108 Application for Authority to Inject, supporting the above-referenced request for saltwater disposal. The well will be operated as a commercial endeavor offering operators in the area additional options for produced water disposal.

Solaris Water Midstream is a major provider of saltwater disposal services to operators in southeast New Mexico and seeks to optimize efficiency, both economically and operationally, of all its operations. Approval of this application is consistent with that goal as well as the NMOCD's mission of preventing waste and protection of correlative rights.

I would point out that this application for a proposed Devonian SWD interval is part of a larger produced water recycling facility. A published legal notice will run this week in the Hobbs News Sun and all offset operators and other interested parties have been notified individually. The legal notice affidavit will be forwarded upon receipt. This application also includes a wellbore schematic, area of review maps, affected party plat and other required information for a complete Form C-108. The well is located on State Trust Land and minerals. There are state lands & minerals within the one-mile radius notice area; the State Land Office and offset operators have been notified of this application.

I respectfully request that the approval of this salt water disposal well proceed swiftly and if you or your staff requires additional information or has any questions, please do not hesitate to call or email me.

Thank you,

A handwritten signature in blue ink, appearing to read "Whitney McKee", is written over a horizontal line.

Whitney McKee

Solaris Water Midstream, LLC

Regulatory Specialist

Side 1

INJECTION WELL DATA SHEET

OPERATOR: ___Solaris Water Midstream, LLC_____

WELL NAME & NUMBER: ___Sims 8 SWD #1_____

WELL LOCATION: _____ 900' FSL & 270' FWL _____ 8 _____ 20 S _____ 36 E _____
 FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC**WELL CONSTRUCTION DATA**Surface Casing

Hole Size: ___18.125"_____ Casing Size:___16"_____

Cemented with: _4146_____ sx. **or** _____ ft³

Top of Cement: ___Surface_____ Method Determined: __Circulate__

Intermediate Casing

Hole Size: __14.75" & 12.25"_____ Casing Size:___13.375"@ 3655'

Cemented with: __4461_____ sx. 9.875" @ 10125'

Top of Cement: ___Surface_____ Method Determined: __Circulate__

Production Casing

Hole Size: _____ 8.5"_____ Casing Size:_____

Cemented with: _103_____ sx. **or** _____ ft³

Top of Cement: __9925'_____ Method Determined: _____

Total Depth: __Liner @ 12005' & TD @13730_____

Injection Interval

_6.5" Hole Size_____12005_____feet to____13730'_____

(Perforated or Open Hole; indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: _____4.5"_____ Lining Material: _____Duoline Glassbore_____

Type of Packer: _____Nickel Alloy Permanent_____

Packer Setting Depth: _____11905'_____

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? _____XXX_____Yes _____No

If no, for what purpose was the well originally drilled? _____

2. Name of the Injection Formation: _____Devonian-Silurian_____

3. Name of Field or Pool (if applicable): _____SWD; Devonian - Silurian_____

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. _____NO_____

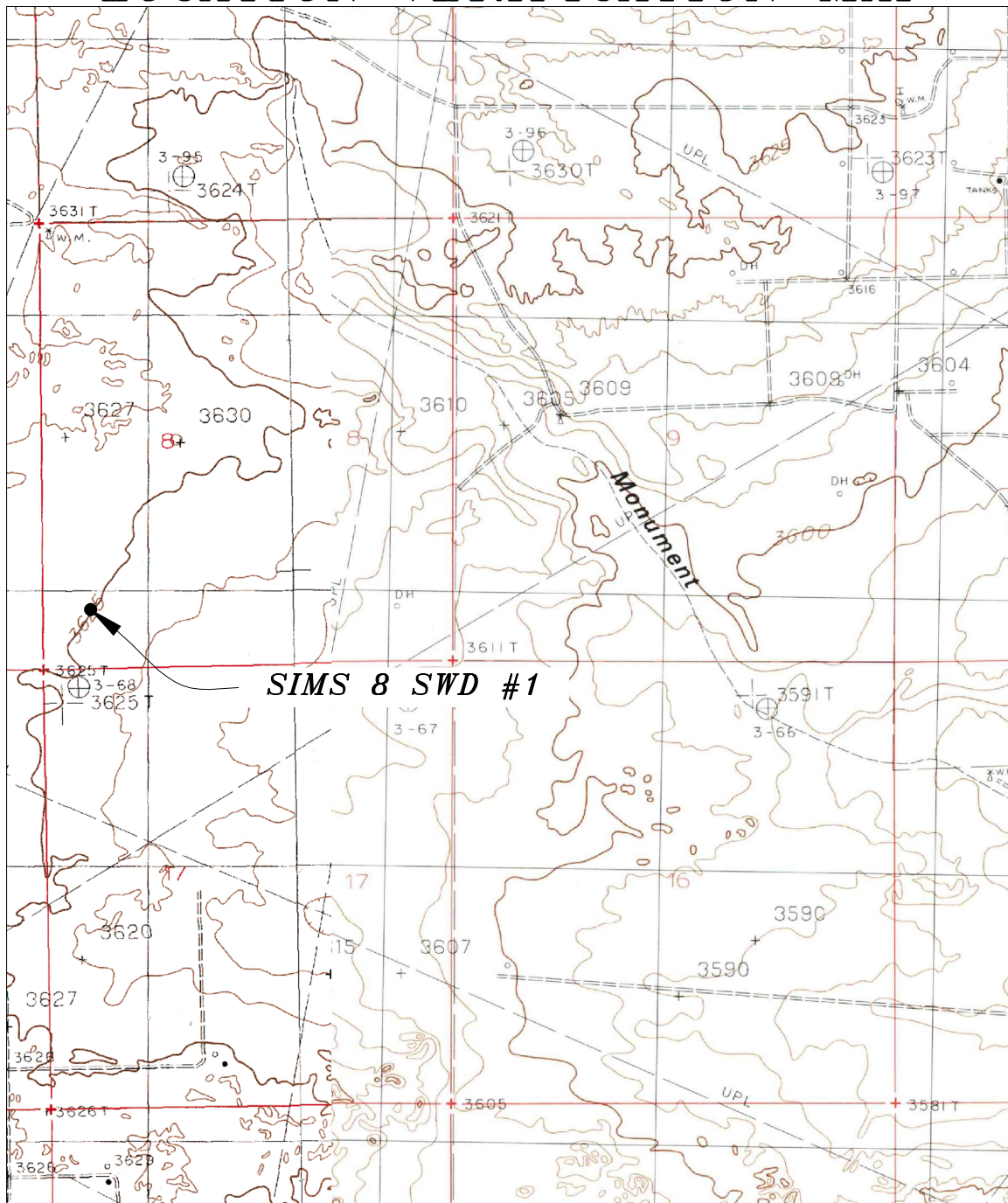
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: _____Over: Queen (4275'), Penrose (4375'), San Andres (4575'), Bone Spring (6975'), Wolfcamp (10100'), Atoka (10475'), Morrow (10950'), Barnett (11250')

Under: None_____

WELLBORE DATA SHEET

HOLE / CASING	DEPTH MD / TVD	FORMATION	LOCATION	Sec 8, T20S - R36E
30"	30	Open	SHL	900' FSL & 270' FWL
	120		COORDS	32.582955, -103.384199
			COUNTY	LEA
			STATE	NEW MEXICO
			SURFACE ELEV.	3,630'
			TOTAL DEPTH	13,730'
18.125" / 16"	1,700	Rustler	Formation Tops	SS
	1,800	21-1/4"-5M Annular/Diverter		TVD
Mud Logging to begin @ 2,500'	1,850	T/Salt	Rustler	1942
	3,050	B/Salt	T/Salt	1792
	3,300	Yates	B/Salt	592
	3,600	Seven Rivers	Yates	342
	4,275	Queen	Seven Rivers	42
	4,575	San Andres	Queen	-633
14.75" / 13.375"	6,000	13-5/8"-5M Annular	San Andres	-933
		13-5/8"-5M BOP's	Bone Spring	-3333
	6,975	Bone Springs	1st BS Sand	-4458
	8,100	1st BS Sand	2nd BS Sand	-5083
	8,725	2nd BS Sand	3rd BS Sand	-5908
	9,550	3rd BS Sand	Wolfcamp	-6458
TOL	10,000		Strawn	-6708
12.25" / 9.625"	10,100	Wolfcamp	Atoka	-6833
	10,200	13-5/8"-5M Annular	Miss LS	-7308
		13-5/8"-10M BOP's	Devonian	-8358
	10,350		T/Montoya	-10283
	10,475		Injection Interval	12005
	10,950			13730
8.5" / 7.625"	12,000	Devonian		
		13-5/8"-5M Annular		
		13-5/8"-10M BOP's		
TD	13,730	Base of Fusselman		
		13-5/8"-5M Annular		
		13-5/8"-10M BOP's		

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 08 TWP. 20-S RGE. 36-ESURVEY N.M.P.M.COUNTY LEA STATE NEW MEXICODESCRIPTION 900' FSL & 270' FWLELEVATION 3,630.3'OPERATOR SOLARIS WATER MIDSTREAM, LLCLEASE SIMS 8 SWD #1

U.S.G.S. TOPOGRAPHIC QUAD MAP

LEA, N.M.

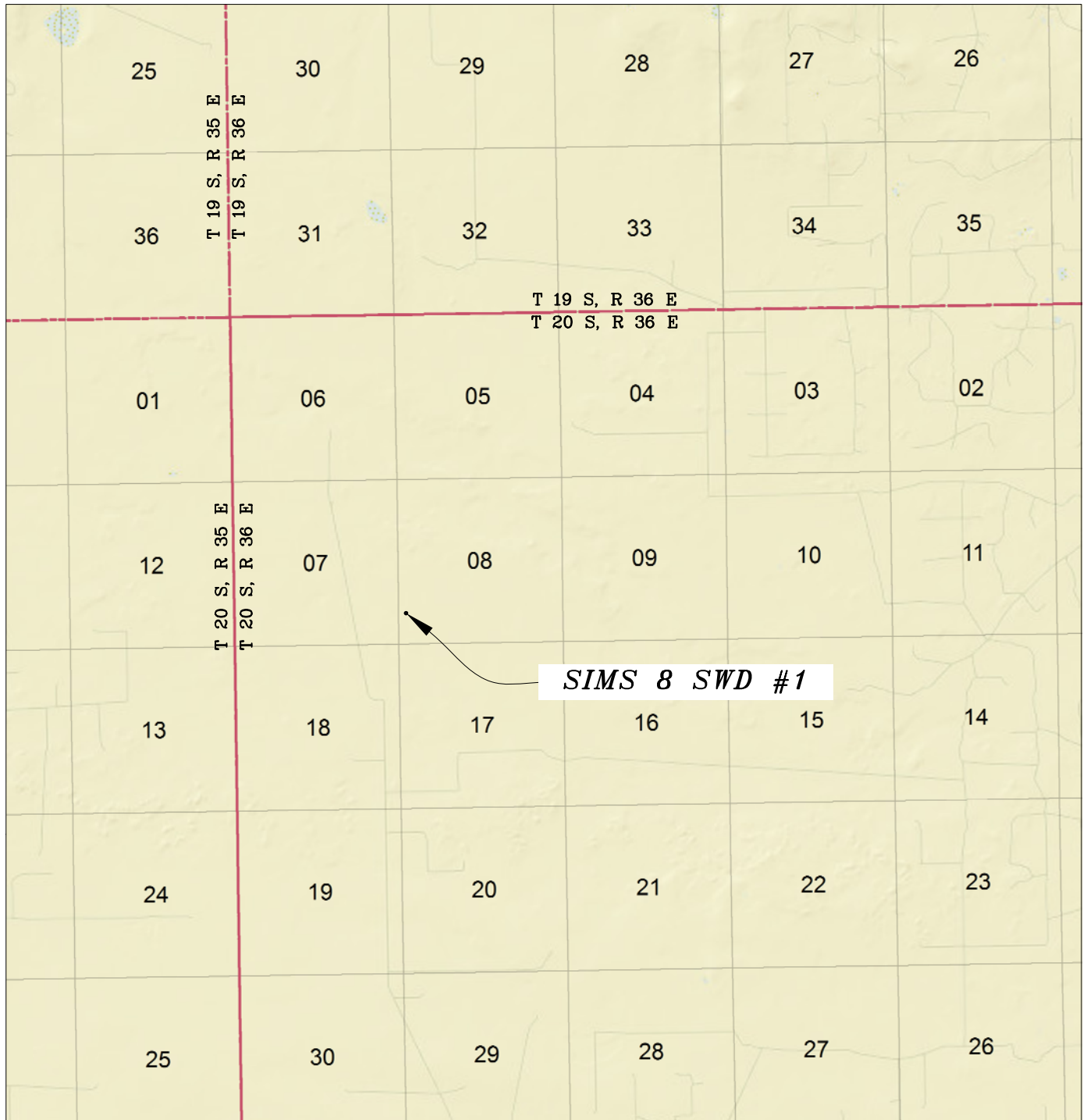
SOLARIS WATER MIDSTREAM, LLC

SURVEY DATE: OCTOBER 15, 2019 PAGE: 1 OF 1

DRAFTING DATE: OCTOBER 18, 2019

APPROVED BY: RLM DRAWN BY: DDSI FILE: SIMS 8 SWD #1

VICINITY MAP

SEC. 08 TWP. 20-S RGE. 36-E

SCALE: 1" = 1 MILE

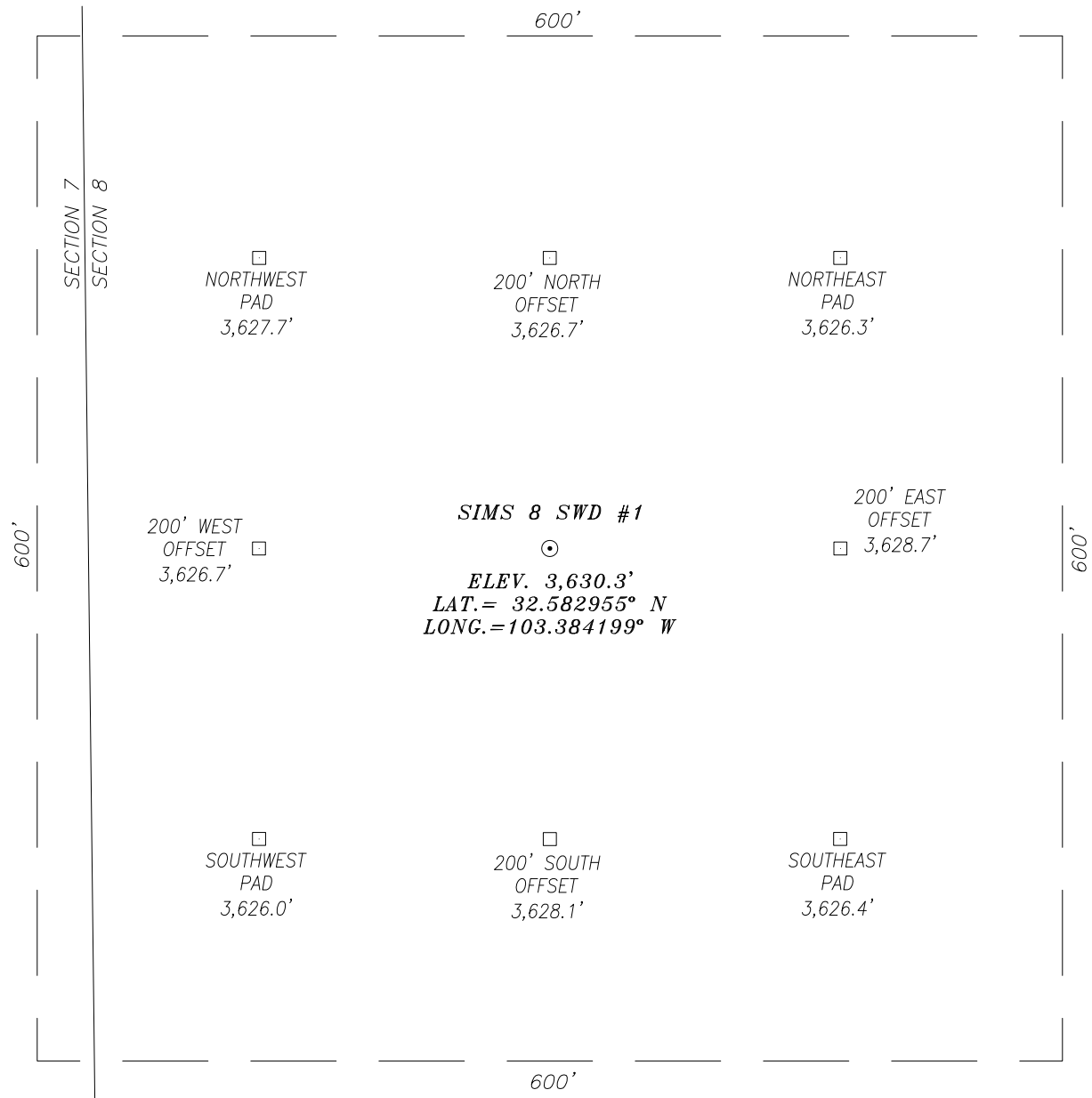
SURVEY N.M.P.M.COUNTY LEA STATE NEW MEXICODESCRIPTION 900 FSL & 270' FWLELEVATION 3,630.3'OPERATOR SOLARIS WATER MIDSTREAM, LLCLEASE SIMS 8 SWD #1

U.S.G.S. TOPOGRAPHIC QUAD MAP

LEA, N.M.**SOLARIS WATER MIDSTREAM, LLC**

SURVEY DATE: OCTOBER 15, 2019	PAGE: 1 OF 1
DRAFTING DATE: OCTOBER 18, 2019	
APPROVED BY: RLM	DRAWN BY: DDSI
	FILE: SIMS 8 SWD #1

SECTION 8, TOWNSHIP 20 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY NEW MEXICO

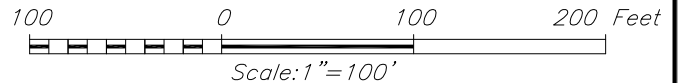


DIRECTIONS TO LOCATION:

FROM HWY 176 AND COUNTY RD 30 (A.K.A. PEARSON RD) TRAVEL NORTH 4.3 MILES ON PEARSON ROAD, TURN LEFT ON LEASE RD, AND CONTINUE FOR 1.1 MILES, TURN RIGHT ON LEASE RD, AND CONTINUE FOR 2.4 MILES, TURN RIGHT ON LEASE RD, AND CONTINUE FOR APPROXIMATELY 0.4 MILES TO SIMS 8 SWD #1.

NOTE:

ELEVATIONS SHOWN ARE RELATED TO N.A.V.D. 1988 AS DERIVED FROM GPS OBSERVATION FROM AN OPUS SOLUTION 10/03/2019



DOWNTOWN DESIGN SERVICES, INC.
16 EAST 16th STREET SUITE 400
TULSA, OK 74119
Tel: 918-592-3374 Fax: 918-221-3940
www.ddsiglobal.com

SOLARIS WATER MIDSTREAM, LLC

SIMS 8 SWD #1
LOCATED 900 FEET FROM THE SOUTH LINE
AND 270' FEET FROM THE WEST LINE OF SECTION 8,
TOWNSHIP 20 SOUTH, RANGE 36 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO

SURVEY DATE: OCTOBER 15, 2019	PAGE: 1 OF 1
DRAFTING DATE: OCTOBER 18, 2019	
APPROVED BY: RLM	DRAWN BY: DDSI
	FILE: SIMS 8 SWD #1

DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II

811 S. First St., ARTESIA, NM 88210
Phone: (575) 749-1283 Fax: (575) 748-9720

DISTRICT III

1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV

11885 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102

Revised August 1, 2011

Submit one copy to Appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 97869	Pool Name SWD; DEVONIAN – SILURIAN
Property Code	Property Name SIMS 8 SWD #1	Well Number #1
OGRID No. 371643	Operator Name SOLARIS WATER MIDSTREAM, LLC	Elevation 3630.3'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
—	8	20-S	36-E		900	SOUTH	270	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
—	8	20-S	36-E		900	SOUTH	270	WEST	LEA
Dedicated Acres 3.67	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<p>NW CORNER SEC. 8 Y=581501.23 N X=833391.62 E</p> <p>N/4 CORNER SEC. 8 Y=581523.60 N X=836039.36 E</p> <p>W/4 CORNER SEC. 8 Y=578855.99 N X=833406.95 E</p> <p>E/4 CORNER SEC. 8 Y=578903.91 N X=838695.71 E</p> <p>N.A.D. 83-NM EAST, US SURVEY FEET SURFACE LOCATION Y=577113.88 N X=833686.54 E LAT.= 32.582955° N LONG.= 103.384199° W</p> <p>S/4 CORNER SEC. 8 Y=576234.96 N X=836062.14 E</p> <p>SE CORNER SEC. 8 Y=576259.07 N X=838703.01 E</p> <p>SW CORNER SEC. 8 Y=576211.36 N X=833421.45 E</p> <p>270' 900' S.L.</p>		<p>OPERATOR CERTIFICATION</p> <p><i>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i></p> <p>Signature _____ Date _____</p> <p>Printed Name _____</p> <p>E-mail address _____</p> <p>SURVEYOR CERTIFICATION</p> <p><i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</i></p> <p>OCTOBER 21, 2019</p> <p>Date Surveyed _____</p> <p>Signature & Seal of Professional Surveyor <i>Chris E. Carlson</i></p> <p>Certificate No. CHRIS E. CARLSON 24876</p>
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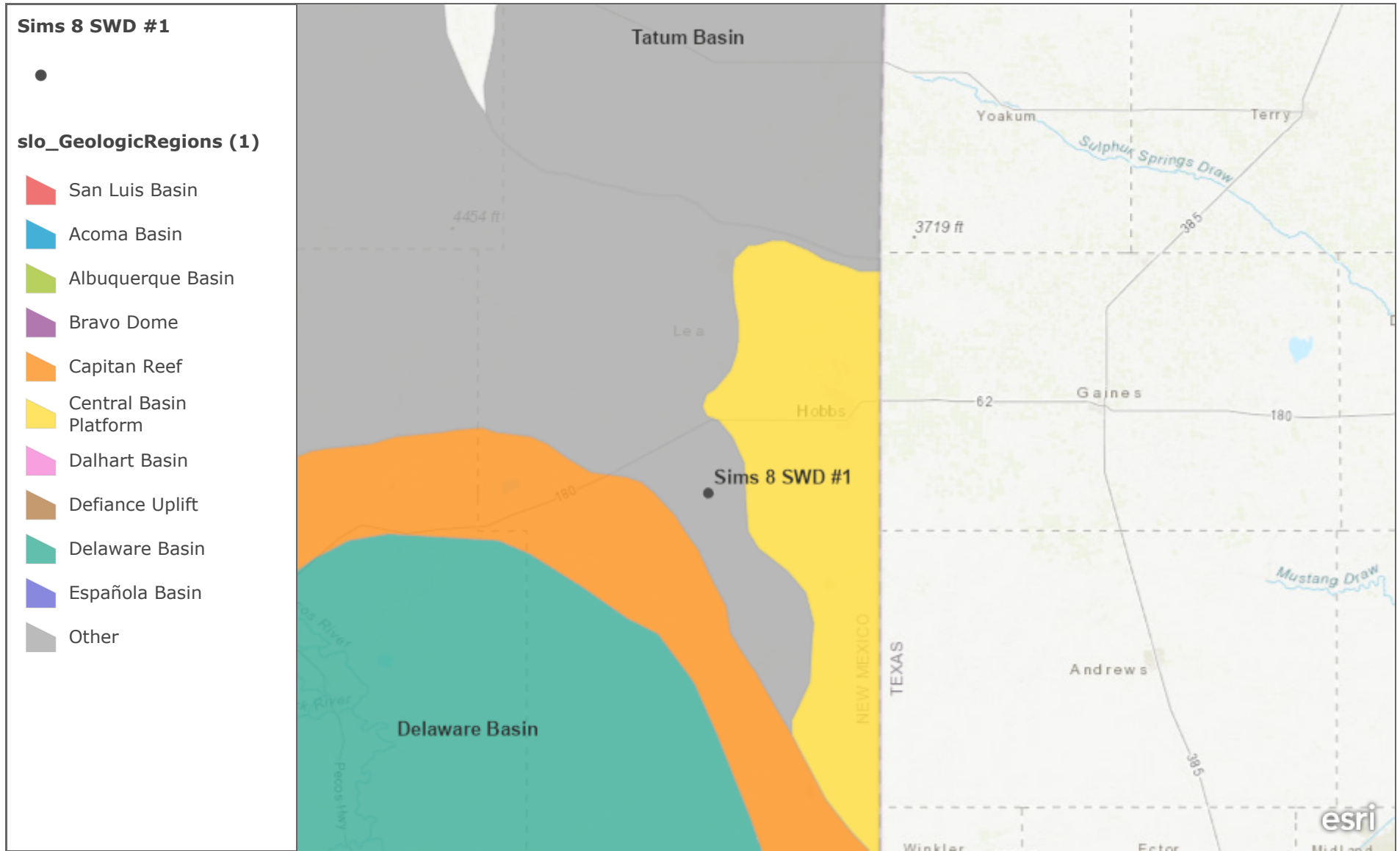


C- 108 Item VI Area of Review Well Data

Sims 8 SWD #1

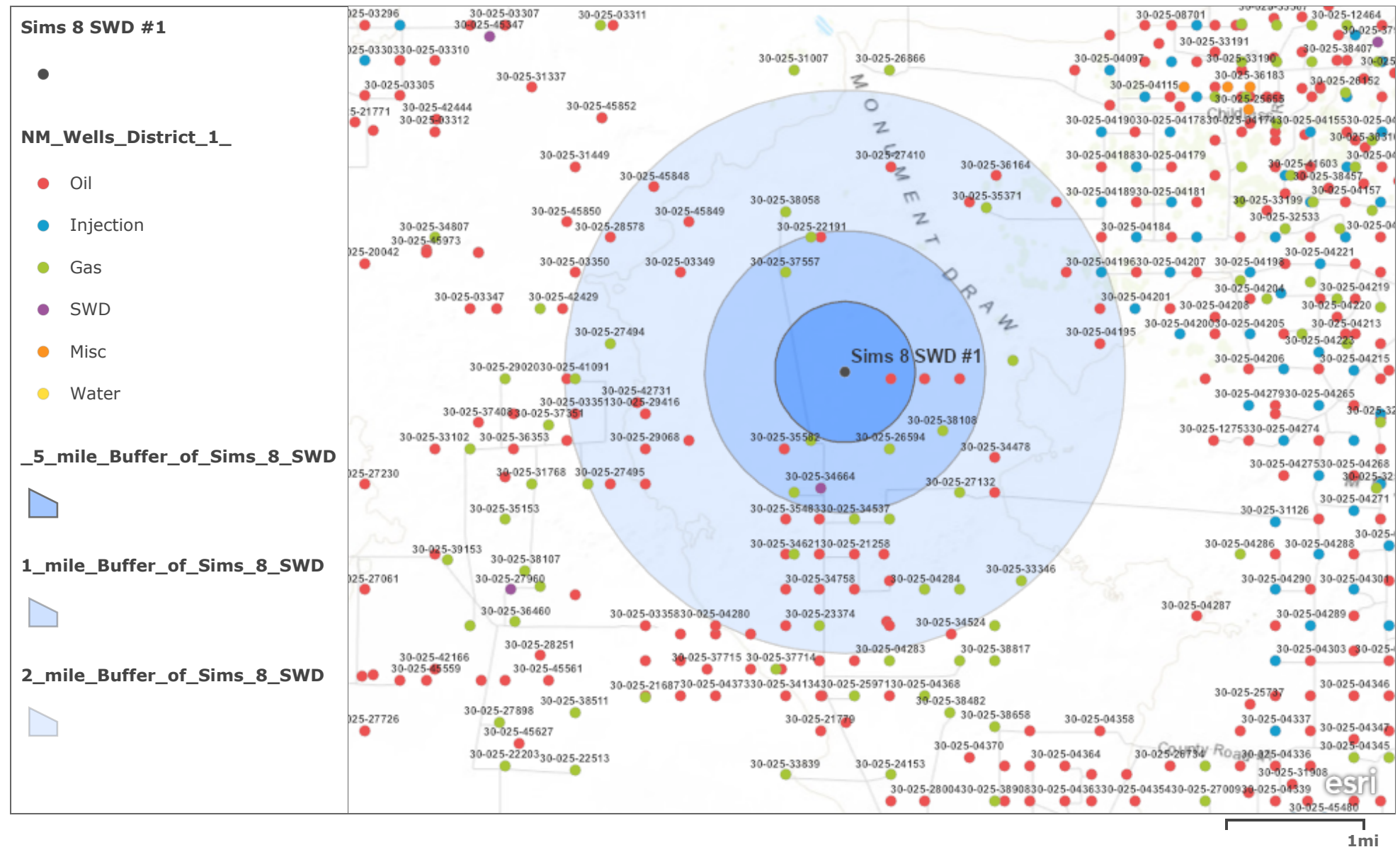
There are no wells which penetrate the proposed Devonian formation in the one mile area of review.

Sims 8



Esri, HERE, Garmin, FAO, USGS, NGA, EPA, NPS

Sims 8



Bureau of Land Management, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Extract_Data_Jan_30_2020_2_19_55_PM

API	wellname	well_type	ustr	ogrid	ogrid_name	status	tot_depth	spud_date	plug_date	eff_date	apr_date	spud_year	pool_id	URL
30-025-26594	AMERADA FEDERAL #002	G	F-17-20S-36E	9892	HAMON OPERATING CO	P	11133	1/1/1900	1/1/1900	1/1/1900		1900	[82160] OSUDO, MORROW, NORTH (GAS)	GP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-26594
30-025-26502	STATE E 8913 #002	O	K-20-20S-36E	9892	HAMON OPERATING CO	P	11478	12/31/9999	8/1/1986	12/28/1998	10/1/1980	1999	[82160] OSUDO, MORROW, NORTH (GAS)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-26502
30-025-21799	AMERADA FEDERAL #001	G	N-17-20S-36E	9892	HAMON OPERATING CO	P	11580	1/1/1900	1/1/1900	1/1/1900		1900	[82160] OSUDO, MORROW, NORTH (GAS)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-21799
30-025-42731	TAYBERRIES 13 STATE #501H	O	B-13-20S-35E	7377	EOG RESOURCES INC	A	10015	11/25/2015	12/31/9999	8/13/2015	8/12/2015	2015	[24270] FEATHERSTONE, BONE SPRING, EAST	OA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-42731
30-025-22191	MALLARD ALVES #001	G	P-06-20S-36E	155615	NADEL AND GUSSMAN PERMIAN, LLC	P	12298	8/24/1995	1/1/2005	12/1/1997	8/18/1995	1995	[82160] OSUDO, MORROW, NORTH (GAS)	GP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-22191
30-025-35582	EXODUS STATE #001	O	G-18-20S-36E	21602	TRILOGY OPERATING INC	C	0	12/31/9999	12/31/9999	1/23/2003	6/7/2001	1999		OC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-35582
30-025-27132	AMERADA FEDERAL #003	G	I-17-20S-36E	21602	TRILOGY OPERATING INC	P	11320	12/31/9999	5/13/1997	2/22/1996	6/1/1981	1999	[82160] OSUDO, MORROW, NORTH (GAS); [86838] DRY AND ABANDONED	GP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-27132
30-025-35483	JEANNIE STATE #001	O	O-18-20S-36E	21602	TRILOGY OPERATING INC	P	4610	4/7/2001	10/26/2004	3/30/2001	3/30/2001	2001	[86838] DRY AND ABANDONED	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-35483
30-025-34553	GENESIS STATE #001	O	P-18-20S-36E	21602	TRILOGY OPERATING INC	P	4400	12/23/1998	16/2009	12/22/1998	12/22/1998	1998	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34553
30-025-38546	PALOMA 20 STATE COM #002H	G	H-20-20S-36E	14744	MEWBOURNE OIL CO	C	999	12/31/9999	12/31/9999	11/26/2008	9/11/2007	1999	[82160] OSUDO, MORROW, NORTH (GAS)	GC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-38546
30-025-38058	NORTH OSUDO G #001	G	J-06-20S-36E	14744	MEWBOURNE OIL CO	A	12550	11/15/2006	12/31/9999	8/10/2006	8/10/2006	2006	[82160] OSUDO, MORROW, NORTH (GAS)	GA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-38058
30-025-34622	ARCO-HALL STATE #003	O	K-20-20S-36E	25482	XERIC OIL & GAS CORP	P	4250	6/12/1999	4/13/2004	5/12/1999	5/12/1999	1999	[76480] EUMONT, YATES-7 RVRS-QUEEN (GAS)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34622
30-025-35947	LIBERTY 4 #002	O	J-04-20S-36E	18917	READ & STEVENS INC	P	9400	7/24/2002	8/5/2004	7/16/2002	7/16/2002	2002	[97422] WILDCAT G-05 S203604J, BONE SPRING	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-35947
30-025-35371	LIBERTY 4 #001	G	L-04-20S-36E	18917	READ & STEVENS INC	P	11820	4/26/2001	12/31/9999	1/26/2001	1/26/2001	2001	[97155] OSUDO, DEVONIAN, NORTH	GA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-35371
30-025-35847	KLEIN 5 #001	O	I-05-20S-36E	18917	READ & STEVENS INC	P	10633	3/1/2002	10/21/2013	2/26/2002	2/26/2002	2002	[97155] OSUDO, DEVONIAN, NORTH; [97762] WILDCAT G-06 S203605I, STRAWN	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-35847
30-025-36164	LIBERTY 4 #003	O	E-04-20S-36E	18917	READ & STEVENS INC	P	7200	2/27/2003	7/3/2003	2/21/2003	2/21/2003	2003	[86838] DRY AND ABANDONED	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-36164
30-025-26803	ROUNTREE #001	O	N-08-20S-36E	24981	WESTERN OIL PRODUCERS INC	P	11688	8/29/1980	4/8/2005	3/1/1998	11/20/1998	1989	[84043] OSUDO, BONE SPRING, NORTH	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-26803
30-025-29416	AMOCO STATE #002	O	B-13-20S-35E	13954	MANZANO OIL CORP	C	0	12/31/9999	12/31/9999	1/1/1900	1/1/1900	1999		OC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-29416
30-025-31883	SIMS STATE #001	O	M-12-20S-35E	13954	MANZANO OIL CORP	P	11532	1/29/1993	5/25/1994	6/13/1994	4/1/1993	1993	[86053] LEA UNDESIGNATED, GROUP 2	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-31883
30-025-34902	AMOCO STATE #002	O	H-13-20S-35E	13954	MANZANO OIL CORP	C	0	12/31/9999	12/31/9999	1/23/2003	1/27/2000	1999		OC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34902
30-025-29068	AMOCO STATE #001	O	G-13-20S-35E	13954	MANZANO OIL CORP	P	11200	12/31/9999	5/15/2000	2/1/1985	2/1/1985	1999	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-29068
30-025-34621	LISA STATE #002	O	B-19-20S-36E	236790	XOG OPERATING LLC	P	4900	6/2/1999	7/8/2008	4/1/2006	5/12/1999	1999	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34621
30-025-34664	GENESIS STATE #003	S	I-18-20S-36E	236790	XOG OPERATING LLC	A	4850	8/25/1999	12/31/9999	4/1/2006	7/23/1999	1999	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	SA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34664
30-025-33346	OXY TIGER FEDERAL COM #001	G	F-21-20S-36E	16696	OXY USA INC	P	11100	6/5/1997	2/25/1999	2/25/1999	3/1/1996	1997	[82160] OSUDO, MORROW, NORTH (GAS)	GP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-33346
30-025-41091	RANGER 12 STATE #001	G	M-12-20S-35E	228937	MATADOR PRODUCTION COMPANY	P	11820	4/22/2013	2/13/2018	4/4/2013	4/4/2013	2013	[24270] FEATHERSTONE, BONE SPRING, EAST; [80060] LEA, WOLFCAMP (GAS)	GP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-41091
30-025-37491	RED RAIDER STATE #002	O	G-19-20S-36E	229137	COG OPERATING LLC	P	10032	11/23/2005	6/19/2009	10/7/2005	10/7/2005	2005	[24270] FEATHERSTONE, BONE SPRING, EAST	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-37491
30-025-37557	OSUDO 7 STATE #001	G	B-07-20S-36E	229137	COG OPERATING LLC	A	12500	5/2/2006	12/31/9999	11/16/2005	11/16/2005	2006	[82160] OSUDO, MORROW, NORTH (GAS)	GA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-37557
30-025-25143	OSUDO STATE COM #001	G	J-18-20S-36E	229137	COG OPERATING LLC	A	11700	12/31/9999	12/31/9999	8/1/2005	1/1/1977	1999	[82160] OSUDO, MORROW, NORTH (GAS)	GA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-25143
30-025-37713	RED RAIDER STATE #003	G	B-19-20S-36E	229137	COG OPERATING LLC	C	0	12/31/9999	12/31/9999	12/21/2009	2/17/2006	1999	[82160] OSUDO, MORROW, NORTH (GAS)	GC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-37713
30-025-36871	RED RAIDER STATE #001	O	K-19-20S-36E	229137	COG OPERATING LLC	P	11911	11/1/2004	5/18/2015	7/25/2005	9/15/2004	2004	[24270] FEATHERSTONE, BONE SPRING, EAST; [82160] OSUDO, MORROW, NORTH (GAS)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-36871
30-025-04196	REED SANDERSON UNIT #016	I	A-09-20S-36E	6137	DEVON ENERGY PRODUCTION COMPANY, LP	P	10640	12/31/9999	4/3/2013	6/22/2011	1/1/1900	1999	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	IP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-04196
30-025-21258	STATE E #001	O	D-20-20S-36E	4323	CHEVRON U S A INC	A	11457	3/3/1965	12/31/9999	10/9/2012	2/8/1996	1965	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-21258
30-025-45848	CENTAUR 0112 STATE COM #002H	O	J-01-20S-35E	373013	Ridge Runner Resources Operating, LLC	N	0	12/31/9999	12/31/9999	4/25/2019	4/25/2019	1999	[96585] WC-025 G-06 S203511G, BONE SPRING	ON https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-45848
30-025-45849	CENTAUR 0112 STATE COM #003H	O	P-01-20S-35E	373013	Ridge Runner Resources Operating, LLC	N	0	12/31/9999	12/31/9999	4/25/2019	4/25/2019	1999	[96585] WC-025 G-06 S203511G, BONE SPRING	ON https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-45849
30-025-26733	ADAMS 16 STATE #001	O	L-16-20S-36E	169415	FALCON CREEK RESOURCES, INC.	P	11145	5/22/1980	8/20/1988	7/16/1988	7/16/1988	1980		OC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-26733
30-025-34478	FOR 16 STATE #001	O	E-16-20S-36E	169415	FALCON CREEK RESOURCES, INC.	C	0	12/31/9999	12/31/9999	6/7/2000	7/31/1998	1999		OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34478
30-025-34475	FOR 20 STATE #002	O	F-20-20S-36E	4323	CHEVRON U S A INC	P	4900	5/24/1999	9/1/2017	10/9/2012	7/29/1998	1999	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34475
30-025-34537	FALCON CREEK 17 FEDERAL #001	G	M-17-20S-36E	147179	CHESAPEAKE OPERATING, INC.	P	4200	12/8/1998	6/29/2005	12/18/2001	11/30/1998	1998	[76480] EUMONT, YATES-7 RVRS-QUEEN (GAS)	GP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34537
30-025-34511	FOR 20 STATE #003	O	G-20-20S-36E	147179	CHESAPEAKE OPERATING, INC.	P	4200	10/12/1998	4/16/2012	12/18/2001	10/2/1998	1998	[76480] EUMONT, YATES-7 RVRS-QUEEN (GAS)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34511
30-025-34474	FOR 20 STATE #001	O	C-20-20S-36E	147179	CHESAPEAKE OPERATING, INC.	P	4150	8/10/1998	4/12/2012	12/18/2001	7/29/1998	1998	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OP https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34474
30-025-34559	LISA STATE #001	O	A-19-20S-36E	371553	BLUE RUBY OPERATING, LLC	A	4890	3/31/1999	12/31/9999	2/4/2019	12/28/1998	1999	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34559
30-025-34758	LISA STATE #003	O	H-19-20S-36E	371553	BLUE RUBY OPERATING, LLC	A	4200	12/20/1999	12/31/9999	2/4/2019	11/8/1999	1999	[22800] EUMONT, YATES-7 RVRS-QUEEN (OIL)	OA https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-34758
30-025-27362	PRE-ONGARD WELL #001	O	O-08-20S-36E	214263	PRE-ONGARD WELL OPERATOR	C	0	12/31/9999	12/31/9999	1/1/1900	1/1/1900	1999		OC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-27362
30-025-27495	PRE-ONGARD WELL #001	O	K-13-20S-35E	214263	PRE-ONGARD WELL OPERATOR	C	0	12/31/9999	12/31/9999	1/1/1900	1/1/1900	1999		OC https://wwwapps.emvrd.state.nm.us/ocd/ocdpermitting/Data/WellDetails.aspx?api=30-025-27495
30-025-28578	PRE-ONGARD WELL #001	O	N-01-20S-35E	214263	PRE-ONGARD WELL OPERATOR	P	10900	1/1/1900	1/1/1900	1/1/1900	1/1/1900	1900		

C- 108 Item X Logs and Available Test Data

Sims 8 SWD #1

A Standard Suite of Logs will be run after drilling the well and submitted to the Division.

C- 108 Item VII Proposed Operation

Sims 8 SWD #1

Commercial SWD Facility

Upon approval of all permits for SWD, operations would begin within 30 days. Completion of the well operations will take approximately 6-8 weeks. Facility construction including installation of the tank battery, berms, plumbing and other and associated equipment would be occurring during the same interval but at a different location from the well. In any event, it is not expected for the construction phase of the project to last more than 60 days, depending on availability of contractors and equipment.

Configure for Salt Water Disposal

Prior to commencing any work, an NOI sundry(ies) will be submitted to configure the well for SWD and will detail the completion workover including all work otherwise described above, any change to the procedure noted herein and to perform mechanical integrity pressure test per OCD test procedures. (Notify NMOCD 24 hours prior.) The casing/tubing annulus will be monitored for communication with injection fluid or loss of casing integrity.

Operational Summary

The SWD facility will not be fenced so that trucks may access for load disposal 24/7.

The well and injection equipment will be a closed system and equipped with pressure limiting devices and volume meters. The annulus, loaded with an inert, anti-corrosion packer fluid, will be monitored for pressure.

The tanks will be equipped with telemetry devices and visual alarms to alert the operator and customers of full tanks or an overflow situation.

Anticipated daily maximum volume is 40,000 bpd and an average of 25,000 bpd at a maximum surface injection pressure of 2,401 psi (.2 psi/ft gradient – maximum pressure will be adjusted If the top of interval is modified after well logs are run).

Potential releases will be contained and cleaned up immediately. The operator shall repair or otherwise correct the situation within 48 hours before resuming operations. OCD will be notified within 24 hours of any release greater than 5 bbls. If required, remediation will start as soon as practicable. Operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as necessary and appropriate.

C- 108 Item VII Produced Water Analyses

Sims 8 SWD #1

Item VII.4- Water Analysis of Source Zone Water

Delaware
Bone Spring

Item VII.5- Water Analysis of Disposal Zone Water

Devonian

Water Analyses follow this page.

wellname	api	section	township	range	unit	ph	ph_temp_f	specificgrav	specificgravity	resistivity_of	resistivity_of	conductivity	sodium_mg	calcium_mg	iron_mg	barium_mg	magnesium	potassium	strontium	manganese	chloride_mg	carbonate_r	bicarbonate	sulfate_mg	hydroxide_n	h2s_mg	
EUNICE MONUMENT SOUTH UNIT B #856	3002504224	11	20S	36E	F	6.9	1.017			20982.4		5807.07	1131.92	0.5085	0.4068	542.061	320.355	17.289			11545	0	1015.98	959.031			
EUNICE MONUMENT SOUTH UNIT B #856	3002504299	23	20S	36E	F	7.7	1.011			18540.6		5250.12	913.944	0.6066	0.9099	409.455	218.376	17.187			9619.66	0	1318.34	995.835			
EUNICE MONUMENT SOUTH UNIT B #856	3002504224	11	20S	36E	F	6.98	1.016			20715.6		5785.1	1089.15	0.2032	0.9144	521.208	278.384	14.224			11284.7	0	1151.13	921.512			
EUNICE MONUMENT SOUTH UNIT B #890	3002504299	23	20S	36E	O	7.39	1.016			20015.17		5354.17	880.872	0.2032	0.09144	506.984	291.592	20.32			9947.66	0	1305.28	970.38			
EUNICE MONUMENT SOUTH UNIT B #890	3002504266	14	20S	36E	P	6.38	1.017			20081.8		5568.07	1112.6	0.4068	0.5085	466.803	277.641	12.204			10711	0	1342.44	931.572			
J R PHILLIPS GAS COM #001	3002504130	1	20S	36E	A					13609											4934		615	3330			
NORTH MONUMENT G/SA UNIT #004	3002504139	1	20S	36E	D					8344																	
NORTH MONUMENT G/SA UNIT #013	3002504151	1	20S	36E	M					18000											8500		1300	2250			
NORTH MONUMENT G/SA UNIT #013	3002504151	1	20S	36E	M					11200											6000		630	530			
NEW MEXICO E STATE NCT-1 #002	3002504152	1	20S	36E	N					14980																	
NEW MEXICO E STATE NCT-1 #002	3002504152	1	20S	36E	N					33835											17060		812	3691			
NEW MEXICO E STATE NCT-1 #002	3002504152	1	20S	36E	N	0				14980											2443			5992			
NORTH MONUMENT G/SA UNIT #002	3002504166	2	20S	36E	B					13866											7265		1604	0			
NORTH MONUMENT G/SA UNIT #007	3002504168	2	20S	36E	G					145491											85640		952	5710			
W P BYRD BATTERY 2 #004	3002504235	36E	12	20S	36E					6973											3636		644	55			
EUNICE MONUMENT SOUTH UNIT B #891	3002504254	13	20S	36E	M					17248											9595		1262	205			
EUNICE MONUMENT SOUTH UNIT B #891	3002504254	13	20S	36E	M					14808											7532		601	1375			
STATE A #005	3002504259	13	20S	36E	I					7270											3200		1720	177			
STATE A #005	3002504259	13	20S	36E	I					9936											4800		1560	125			
EUNICE MONUMENT SOUTH UNIT B #885	3002504272	14	20S	36E	K					49286											31110		899	1618			
EUNICE MONUMENT SOUTH UNIT B #885	3002504272	14	20S	36E	K					15994											7207		1380	1746			
SANDERSON AB 14 #002	3002504277	14	20S	36E	D					165217											99940		695	1291			
NEW #001	3002504350	26	20S	36E	A					79120											47790		1445	738			
NEW #001	3002504350	26	20S	36E	A					44140											26230		1461	93			
STATE WELF 32 #001	3002504374	32	20S	36E	O					177450																	
EUNICE MONUMENT SOUTH UNIT B #900	3002504297	23	20S	36E	B	5.7	1.021			22833.3			6246.48	611.579	0.5105	0.7147	425.757	1612.16	12.252		11595.5	0	1519.25	1288.5		439.03	
EUNICE MONUMENT SOUTH UNIT B #900	3002504297	23	20S	36E	B	6.49	1.015			18389.9			5174.47	871.885	0.203	1.015	449.645	229.39	16.24		9440.51	0	1388.52	1094.17			
EUNICE MONUMENT SOUTH UNIT B #900	3002504297	23	20S	36E	B	5.95	1.02			20611.1			5425.38	601.8	0.612	0.714	309.606	1720.74	15.3		9911.34	0	1579.98	1458.6		336.6	
EUNICE MONUMENT SOUTH UNIT B #891	3002504254	13	20S	36E	M					1.011	60		0.518	65	19323	64	4368	520			412		7532		601	1375	
SANDERSON A #010	3002504270	14	20S	36E	A	6.9															134700		146	5340			
NORTH MONUMENT G/SA UNIT #001	3002504165	2	20S	36E	A	8.8				1.003	77	10905	0.91	12192	67	2829	740			66		2350		1220	3700		
SANDERSON A #010	3002504270	14	20S	36E	A	6.7															26700		1150	2340			
SANDERSON A #010	3002504270	14	20S	36E	A	6.9															25200		1240	2290			
NORTH MONUMENT G/SA UNIT #001	3002504165	2	20S	36E	A	7.1				1.025	60	40497	0.22	49728	67	12952	1680			330		29800		1390	3100		
NORTH MONUMENT G/SA UNIT #001	3002504165	2	20S	36E	A	7.1				1.06	70	71407	0.1	82720	67	24177	2320			510		20800		810	3500		
NORTH MONUMENT G/SA UNIT #001	3002504165	2	20S	36E	A	7.1				1.023	77	17045	0.258	34476	67	7815	1670			330		1570		1070	245		
EUNICE MONUMENT SOUTH UNIT #102	3002504326	25	20S	36E	A	7	1.291	72		2749		0.073	65	137731	64	32533	107798			10909		247872		1091	30984		
EUNICE MONUMENT SOUTH UNIT B #891	3002504254	13	20S	36E	M	8	1.01			17429		0.433	65	23093	67	4848	904			434		9595		1262	205		
STATE J D COM. #001	3002524153	29	20S	36E	K	7.7				8220						2292	288				247		4080		1151	24	
EUNICE MONUMENT SOUTH UNIT #162	3002504419	36	20S	36E	I	7.15				1448						4137	49			296		6780		1751	437		
NEW #001	3002504350	26	20S	36E	A	7.15				79191											47803		1448	739			
NORTH MONUMENT G/SA UNIT #005	3002520193	2	20S	36E	E					11847											6090		1796	0			
EUNICE MONUMENT SOUTH UNIT #107	3002504320	25	20S	36E	F					46200				14600	680						1590		27000		1920	401	
EUNICE MONUMENT SOUTH UNIT #107	3002504320	25	20S	36E	F					65800				20800	1600						2000		39600		1120	703	
EUNICE MONUMENT SOUTH UNIT #104	3002504321	25	20S	36E	C	7.4				13871				5520	650					559		559		10100		1410	512
EUNICE MONUMENT SOUTH UNIT #104	3002504321	25	20S	36E	C	7.5				18200				5560	530					523		10600		1070	1068		
EUNICE MONUMENT SOUTH UNIT #104	3002504321	25	20S	36E	C	7.6				52098				16683	863					1798		31813		104	837		
SANDERSON A #010	3002504270	14	20S	36E	A	7.3				105500											59000		793	5670			

C- 108 Item VIII Geologic Information

Sims 8 SWD #1

The Devonian consist of carbonates including light colored dolomite and chert intervals interspersed with some tight limestone intervals. Several thick sections of porous dolomite capable of taking water are believed present within the subject formations in the area. Depth control data was inferred from deep wells to the south and east. If the base of Devonian come in as expected the well will only be drilled deep enough for adequate logging rathole.

At a proposed injection interval of 12,005-13,730' BGL (Below Ground Level) the well will TD at approximately 13,730'. Mud logging through the interval will ensure the target interval remains in Devonian and Silurian. Once Devonian is determined, the casing shoe depth will be set at an approximate maximum upper depth of 12,005 BGL. Injection will occur through the resulting openhole interval. Should mud or other logs indicate depth adjustment is required to exploit the desired formation as described; sundries with appropriate data will be filed with the OCD.

The Devonian is overlain by the Mississippian , Atoka, Strawn, Wolfcamp, Bone Spring, San Andres, Queen, Seven Rivers, Yates and Rustler.

Fresh water in the area is generally available from the Rustler formation and some alluvial deposits. State Engineer's records show water wells in a 5 mile radius with a depth to groundwater of 100- 250 feet.

Solaris Water Midstream, LLC
Sims 8 SWD #1
900' FSL & 270' FWL
Sec. 8 T. 20S., R. 36 E., Lea County NM

Estimated formation tops are:

Quaternary = 0'
Rustler anhydrite= 1700'
Top Salt= 1850'
Base Salt = 3050'
Yates = 3300'
Seven Rivers = 3600'
Queen = 4275'
San Andres = 4575'
Bone Spring = 6975'
Wolfcamp = 10100'
Strawn= 10350'
Atoka= 10475'
Mississippian= 10950'
Devonian= 12000'

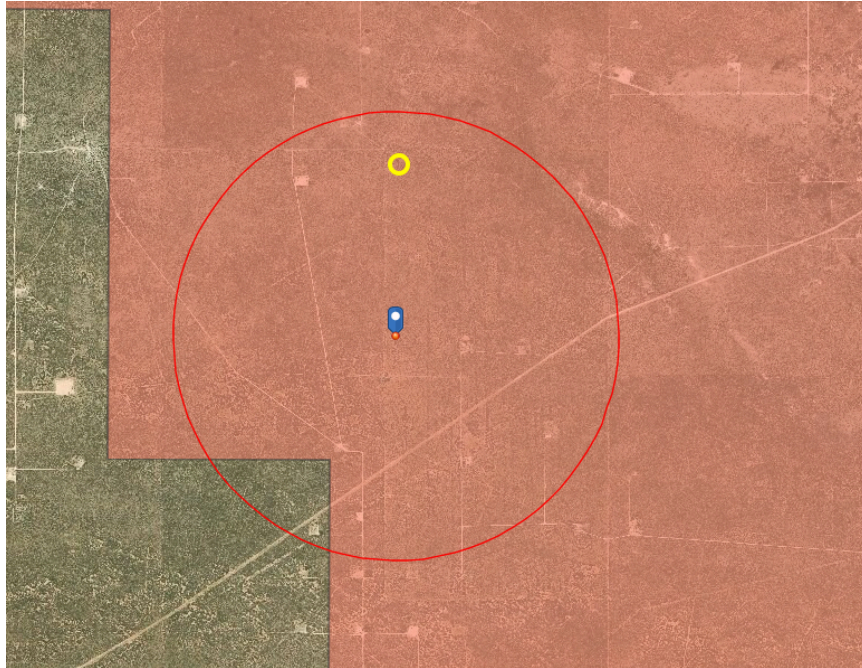
disposal interval= 12005' - 13730'

TD= 13,730'

Montoya = 13,925'

C- 108 Item VIII & XI Groundwater Basins- Water Column/ Depth to Groundwater Water Wells in AOR

Sims 8 SWD #1 Water Well Map



The subject well is located within the Lea County Basin.

Three principal aquifers are used for portable groundwater in Lea County, these geologic units include the Triassic Santa Rosa formation, Tertiary Ogallala formation and Quaternary alluvium. State Engineer's records show water wells in surrounding area with an average depth to water at 700 ft.

There is 1 water well located within one mile of the proposed SWD.

Analytical Report

EXHIBIT H

Lab Order 1905065

Date Reported: 5/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West		Client Sample ID: 558 Section 8 WM	
Project: Solaris Simm 8 SWD		Collection Date: 4/26/2019 9:14:00 AM	
Lab ID: 1905065-001		Received Date: 5/2/2019 9:28:00 AM	
Matrix: AQUEOUS			
Analyses	Result	RL	Qual Units DF Date Analyzed Batch
EPA METHOD 1664B			
Analyst: plr			
N-Hexane Extractable Material	ND	10.3	mg/L 1 5/7/2019 11:11:00 AM 44759
EPA METHOD 300.0: ANIONS			
Analyst: smb			
Chloride	840	50	* mg/L 100 5/7/2019 12:00:08 PM R59721
SM2540C MOD: TOTAL DISSOLVED SOLIDS			
Analyst: KS			
Total Dissolved Solids	3400	20.0	* mg/L 1 5/6/2019 11:48:00 AM 44707

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range

Analytical Report

EXHIBIT H

Lab Order 1905065

Date Reported: 5/10/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Permits West

Project: Solaris Simm 8 SWD

Lab ID: 1905065-002

Client Sample ID: 550 Section 5 WM

Collection Date: 4/26/2019 1:10:00 PM

Received Date: 5/2/2019 9:28:00 AM

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 1664B							Analyst: plr
N-Hexane Extractable Material	ND	11.4		mg/L	1	5/7/2019 11:11:00 AM	44759
EPA METHOD 300.0: ANIONS							Analyst: smb
Chloride	160	5.0		mg/L	10	5/7/2019 12:12:59 PM	R59721
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	770	20.0	*	mg/L	1	5/6/2019 11:48:00 AM	44707

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

EXHIBIT H
WO#: 1905065
10-May-19

Client: Permits West
Project: Solaris Simm 8 SWD

Sample ID: MB-44759	SampType: MBLK	TestCode: EPA Method 1664B
Client ID: PBW	Batch ID: 44759	RunNo: 59719
Prep Date: 5/7/2019	Analysis Date: 5/7/2019	SeqNo: 2013808 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
N-Hexane Extractable Material	ND	10.0

Sample ID: LCS-44759	SampType: LCS	TestCode: EPA Method 1664B
Client ID: LCSW	Batch ID: 44759	RunNo: 59719
Prep Date: 5/7/2019	Analysis Date: 5/7/2019	SeqNo: 2013809 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
N-Hexane Extractable Material	32.8	10.0 40.00 0 82.0 78 114
Silica Gel Treated N-Hexane Extrac	ND	10.0 20.00 0 0 64 132 S

Qualifiers:

- * Value exceeds Maximum Contaminant Level

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit
- B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

EXHIBIT H
WO#: 1905065
10-May-19

Client: Permits West
Project: Solaris Simm 8 SWD

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBW	Batch ID: R59721	RunNo: 59721
Prep Date:	Analysis Date: 5/7/2019	SeqNo: 2013985 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	0.50

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSW	Batch ID: R59721	RunNo: 59721
Prep Date:	Analysis Date: 5/7/2019	SeqNo: 2013986 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	4.8	0.50 5.000 0 95.3 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample at Blank

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.****EXHIBIT H**

WO#: 1905065

10-May-19

Client: Permits West

Project: Solaris Simm 8 SWD

Sample ID: MB-44707	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: PBW	Batch ID: 44707	RunNo: 59654
Prep Date: 5/3/2019	Analysis Date: 5/6/2019	SeqNo: 2010986 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	ND	20.0

Sample ID: LCS-44707	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: LCSW	Batch ID: 44707	RunNo: 59654
Prep Date: 5/3/2019	Analysis Date: 5/6/2019	SeqNo: 2010987 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	1010	20.0 1000 0 101 80 120

Sample ID: 1905065-002BDUP	SampType: DUP	TestCode: SM2540C MOD: Total Dissolved Solids
Client ID: 550 Section 5 WM	Batch ID: 44707	RunNo: 59654
Prep Date: 5/3/2019	Analysis Date: 5/6/2019	SeqNo: 2011003 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	765	20.0 0.651 10 *

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits

C- 108 Item XII Geologic Affirmation

Sims 8 SWD #1

GEOLOGIC AFFIRMATION

I have examined available geologic and engineering data and have found no evidence of open faults or other hydrologic connection between the disposal interval and underground sources of drinking water.

A handwritten signature in blue ink, consisting of a large, stylized 'S' followed by a horizontal line extending to the right.

Stephen Martinez
Sr. Vice President of Drilling

Project: Solaris Water Midstream, LLC
 Sims 8 SWD #1

**C- 108 Item XIII
Proof of Notification
Affected Parties List**

Sims 8 SWD #1

Received by OCD: 2/11/2020 8:18:47 AM

Find address or place

280 02 VB2695 Set location

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

VB27490 VC5960 VC5570 LB20612 E010230 A0137545 V042544 VC2040 VC1650 B112946

NMNM : 038479 NMNM : 001151 NMNM : 089875 NMNM : 016835 NMNM : 136225 NMNM : 027205 NMNM : 134889 NMNM : 018264 NMNM : 089873

Hobbs (1)

20S 35E 20S 36E

1km 0.6mi

-103.42294 32.60275 Degrees

Bureau of Land Management, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENTAL

esri

Page 31 of 40

Area of Review	Lease ID	Lessor	BLM or NMSLO Lessee (s) of Record
N2 of Sec 12	VB27490002	NMSLO	Ridge Runner Resources Operating LLC
SW4 of Sec 12	VC05960000	NMSLO	Ridge Runner Resources Operating LLC
SE4 of Sec 12	VC05570000	NMSLO	Ridge Runner Resources Operating LLC
W2 of Sec 13	VB06660002	NMSLO	Chevron USA Inc.
E2 of Sec 13	VB19180001	NMSLO	EOG Resources Inc.
N2 of Sec 18	LG20610002	NMSLO	COG Operating LLC
N2 of Sec 19 & N2SW4 of Sec 20	A013750045	NMSLO	Occidental Permian LTD.
N2 of Sec 20 & N2SE4 of Sec 20	V042540004	NMSLO	Chevron USA Inc.
NW4 & N2SW4 Sec 16	VC02040000	NMSLO	Trove Energy & Water LLC
NEWSW Sec 16	B112940008	NMSLO	Finley Resources Inc.
NE4 Sec 16	VC01650000	NMSLO	Trove Energy & Water LLC
	B031140010	NMSLO	ZPZ Delaware LLC
W2 Sec 9	NMNM-089873	BLM	Apache, Chevron & ZPZ
W2E2 & SESW Sec 9	NMNM-089875	BLM	Sanderson, Nesrsta & Thompson
NENE Sec 9	NMNM-0031622B	BLM	Sanderson, Nesrsta & Thompson
N2SE4 & NESW Sec 17	NMNM-134889	BLM	R&R Royalty LTD
SW4 Sec. 4	Liberty 4	Fee	
SWSE Sec. 4	Strickland Patent	Fee	
SE4 & S2SW4 Sec 5	Isaac O Allred	Fee	
SENE & E2SE4 Sec 7	Osudo 7 State	Fee	
S2 Sec 8	Heirs of Jesse Allred patent	Fee	
SENE & NESE Sec 9	Love Patent	Fee	
N2 Sec 17	Isaac O Allred Jr. Patent	Fee	

Parcel Report - Sims 8 SWD #1

OWNER NAME 1	MAILING ADDRESS	MAILING CITY	MAILING STATE	MAILING ZIP	ACRES	APN
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	280.88	4000420050008
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	640	4000420090016
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	364.33	4000420100016
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	320	4000420090015
WILLIAM E JOHNSTON	PO BOX 234	MONUMENT	NM	882650234	160	4000403920002
L & K RANCH LLC	PO BOX 1503	HOBBS	NM	882411503	227.88	4000412520005
L & K RANCH LLC	PO BOX 1503	HOBBS	NM	882411503	640.68	4000412520009
L & K RANCH LLC	PO BOX 1503	HOBBS	NM	882411503	160	4000412520003
DALE COOPER	PO BOX 6	MONUMENT	NM	882650006	520	4000404930001
J W MANSELL	1134 BRAUNE RD	ABILENE	TX	796039016	80	4000414170001
S & S INC	PO BOX 1046	EUNICE	NM	882311046	284.43	4000201071001
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	360	4000420090001
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	478.75	4000420090014
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	236.87	4000420090013
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	640	4000420100014
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	320	4000420080001
S & S INC	PO BOX 1046	EUNICE	NM	882311046	275.67	4000201071002
L & K RANCH LLC	PO BOX 1503	HOBBS	NM	882411503	480.6	4000412520008
DALE COOPER	PO BOX 6	MONUMENT	NM	882650006	120	4000404930014
KYLE E JOHNSTON	1321 W COLLEGE LN	HOBBS	NM	882420828	637.18	4000423090008
KYLE E JOHNSTON	1321 W COLLEGE LN	HOBBS	NM	882420828	314.8	4000423090006
L & K RANCH LLC	PO BOX 1503	HOBBS	NM	882411503	280	4000412520004
WILLIAM E JOHNSTON	PO BOX 234	MONUMENT	NM	882650234	160	4000403920001
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	80	4000420110001
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	640	4000420100015
MAIN ST HOLDING CO	11413 W 104TH ST	OVERLAND PARK	KS	662142715	160	4000414050001
L & K RANCH LLC	PO BOX 1503	HOBBS	NM	882411503	560	4000412520010
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	637.54	4000420060005
PEARL VALLEY LIMITED PARTNERSHIP	PO BOX 1046	EUNICE	NM	882311046	355.57	4000420100017



January 15th, 2020

NOTIFICATION TO INTERESTED PARTIES

Via U.S. Certified Mail- Return Receipt Requested

To whom it may concern,

Solaris Water Midstream, LLC, Midland, Texas, has made an application to the New Mexico Oil Conservation Division to drill and complete, for salt water disposal, the Sims 8 SWD No. 1. The proposed commercial operation will be for produced water disposal from area operators. As indicated in the notice below, the well is located in Section 8, Township 20 South, Range 36 East in Lea County, New Mexico.

The published notice states that the interval will be from 12,005 feet to 13,730 feet into the Devonian and Silurian Formations.

Following is the notice to be published in the Hobbs News Sun, Hobbs, New Mexico on or about January 21st, 2019.

LEGAL NOTICE

Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706 filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Sims 8 SWD No. 1 will be located 900 feet from the South line and 270 feet from the West line, Section 8, Township 20 South, Range 36 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian and Silurian Formations at a depth of 12,005 feet to 13,730 feet at a maximum surface pressure of 2,401 psi and an average injection rate of 40,000 barrels per day. (Final completion depths may be adjusted per mudlogging and reported to the NMOCD on form C-105; pressure will remain at the standard gradient of 0.2 psi/ft of the uppermost injection interval depth). The proposed SWD well is located approximately 5 miles SW of Monument, NM.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, Gavilan Solutions, LLC, 505-360-9819 or email: awhite@gavilansolutions.com.

You have been identified as a party who may be interested as an offset lessee or operator.

You are entitled to a full copy of the application. A full copy in PDF format is available for immediate download with the link below.

URL Link: <https://www.dropbox.com/sh/8xex60vx674kmdm/AAAn6QA01ERzwS6Uaqs3e55ta?dl=0>

You may also receive a copy by emailing awhite@gavilansolutions.com with your request. Please use a subject like Sims 8 SWD #1 request.

Thank you for your attention to this matter.

A handwritten signature in blue ink, appearing to read "Whitney McKee". The signature is fluid and cursive, with the first name "Whitney" and last name "McKee" clearly distinguishable.

Whitney McKee

Solaris Water Midstream, LLC
Regulatory Specialist

**C- 108 Item XIV
Proof of Notice
Legal Notice in Newspaper of General Circulation**

Sims 8 SWD #1

Below is the affidavit of publication from the Hobbs Sun News.

LEGAL NOTICE FEBUARY 1, 2020

Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706 filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Sims 8 SWD No. 1 will be located 900 feet from the South line and 270 feet from the West line, Section 8, Township 20 South, Range 36 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian and Silurian Formations at a depth of 12,005 feet to 13,730 feet at a maximum surface pressure of 2,401 psi and an average injection rate of 40,000 barrels per day. (Final completion depths may be adjusted per mudlogging and reported to the NMOCD on form C-105; pressure will remain at the standard gradient of 0.2 psi/ft of the uppermost injection interval depth). The proposed SWD well is located approximately 5 miles SW of Monument, NM.

Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, Gavilan Solutions, LLC, 505-360-9819 or email: awhite@gavilansolutions.com.

#35150

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA

I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
February 01, 2020
and ending with the issue dated
February 01, 2020.



Publisher

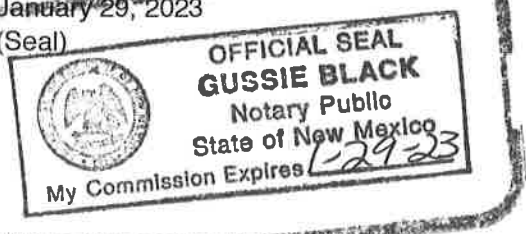
Sworn and subscribed to before me this
1st day of February 2020.



Business Manager

My commission expires
January 29, 2023

(Seal)



This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL	LEGAL
LEGAL NOTICE FEBRUARY 1, 2020	
<p>Solaris Water Midstream, LLC, 907 Tradewinds Blvd., Suite B, Midland, TX 79706 filed Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Sims 8 SWD No. 1 will be located 900 feet from the South line and 270 feet from the West line, Section 8, Township 20 South, Range 36 East, Lea County, New Mexico. Produced water from area production will be commercially disposed into the Devonian and Silurian Formations at a depth of 12,005 feet to 13,730 feet at a maximum surface pressure of 2,401 psi and an average injection rate of 40,000 barrels per day. (Final completion depths may be adjusted per mudlogging and reported to the NMOCD on form C-105; pressure will remain at the standard gradient of 0.2 psi/ft of the uppermost injection interval depth). The proposed SWD well is located approximately 5 miles SW of Monument, NM.</p> <p>Interested parties wishing to object to the proposed application must file with the New Mexico Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, NM 87505 (505) 476-3460 within 15 days of the date of this notice. Additional information may be obtained from the applicant's agent, Gavilan Solutions, LLC, 505-360-9819 or email awhite@gavilansolutions.com. #35150</p>	

67115886

00239069

ASHLEY WHITE
GAVILAN SOLUTIONS, LLC
4533 17TH AVE NE
RIO RANCHO, NM 87144

C- 108 Item XIV Seismic Maps

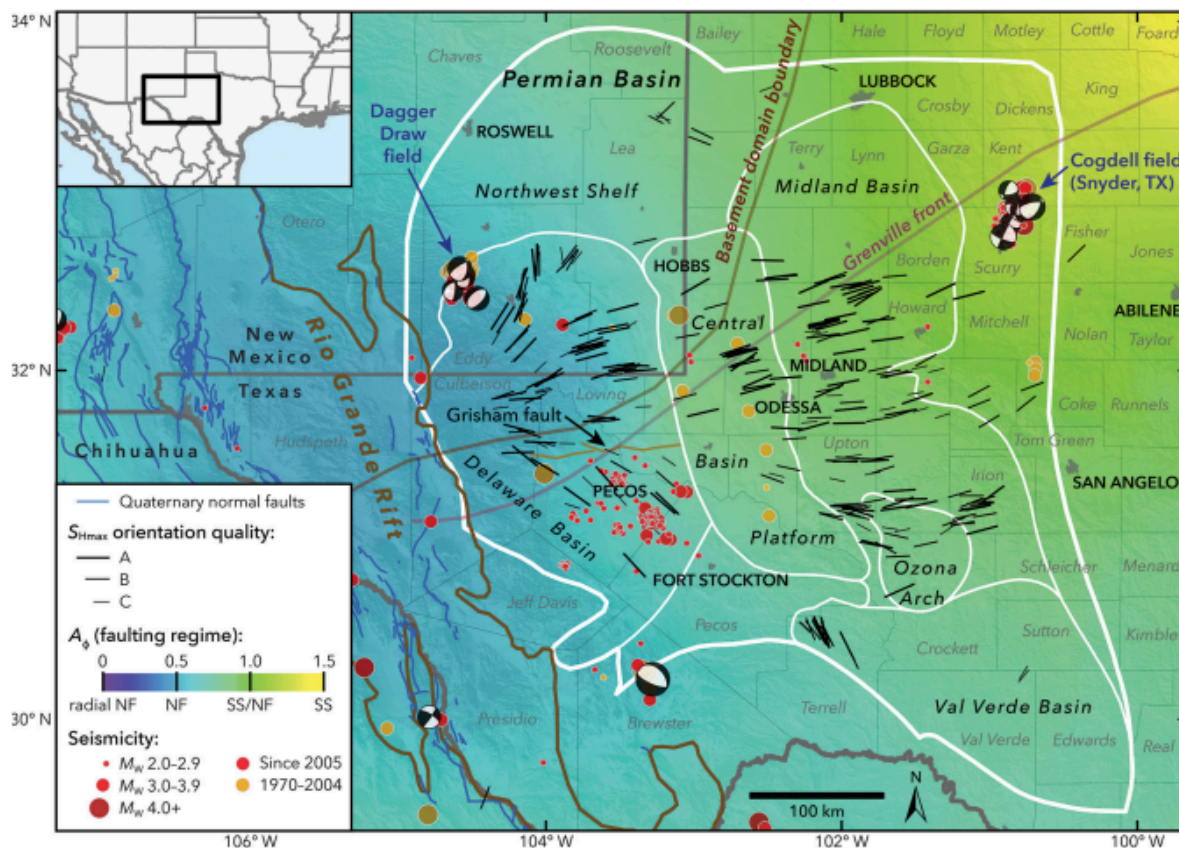


Figure 1. State of stress in the Permian Basin, Texas and New Mexico. Black lines are the measured orientations of S_{Hmax} with line length scaled by data quality. The colored background is an interpolation of measured relative principal stress magnitudes (faulting regime) expressed using the A_p parameter (see text for details) of Simpson (1997). Blue lines are fault traces known to have experienced normal-sense offset within the past 1.6 Ma, from the USGS Quaternary Faults and Folds Database (Crone and Wheeler, 2000). The boundary between the Shawnee and Mazatzal basement domains is from Lund et al. (2015), and the Precambrian Grenville Front is from Thomas (2006). The Permian Basin boundary is from the U.S. Energy Information Administration, and the subsurface boundaries are from the Texas Bureau of Economic Geology Permian Basin Geological Synthesis Project. Earthquakes are from the USGS National Earthquake Information Center, the TexNet Seismic Monitoring Program, and Gan and Frohlich (2013). Focal mechanisms are from Saint Louis University (Herrmann et al., 2011).

**Solaris Water Midstream, LLC
Sims 8 SWD #1**

FORM C-108 Supplemental Information

III. Well Data

A. Wellbore Information

1

Well Information	
Lease Name	Sims 8 SWD
Well No.	1
Location	S 8 T20S - R36E
Footage Location	900' FSL & 270' FWL

2

a) Wellbore Description

Casing Information				
Type	Surface	Intermediate 1	Intermediate 2	Liner
OD	16"	13.375"	9.625"	7.625"
WT	84 lb/ft	68 lb/ft	53.50 lb/ft	39 lb/ft
ID	15.010"	12.415"	8.535"	6.625"
Drift ID	14.822"	12.259"	8.500"	6.500"
Weight	84 lb/ft	68 lb/ft	53.50 lb/ft	39 lb/ft
Grade	K-55	N-80	HCP-110, BTC	P-110, FJ
Hole Size	18-1/8"	14-3/4"	12-1/4"	8-1/2"
Depth Set	2,000	6,000	10,218	12,005
open hole from 12,005' to 13,730'				

b) Cementing Program

Cement Information				
Casing String	Surface	Intermediate 1	Intermediate 2	Liner
Lead Cement	100 Class C Premium	65:35 Class C Premium Compass Poz-Mix	100 TXI Lightweight Cement	70:30 Class H Premium COP-18
Lead Cement Volume (sacks)	565	1,560	Stage 1 Lead: 435 Stage 2 Lead: 875	205
Lead Cement Density (ft3/sack)	13.5	12.7	Stage 1 Lead: 11.2 Stage 2 Lead: 11.8	14.6
Tail Cement	100 Class C Premium	60:20:20 Class H Premium	85:15 Class H Premium CPO-18	-
Tail Cement Volume (sacks)	210	570	Stage 1 Tail: 755 Stage 2 Tail: 165	-
Tail Cement Density (ft3/sack)	14.8	14.8	Stage 1 Tail: 15.0 Stage 2 Tail: 14.8	-
Cement Excess	100% 100%	350% 200%	Stage 1 Lead/Tail: 50% Stage 2 Lead/Tail: 0%	60%
Total Sacks	775	2,130	2,230	210
TOC	Surface	Surface	Stage 1: 5,900 Stage 2: Surface	10,018
Method	Circulate to Surface	Circulate to Surface	Circulate to Surface	Logged

3

Tubing Description

Tubing Information	
OD	5.5" 5.0"
WT	20# 18#
ID	4.778" 4.276"
Drift ID	4.653" 4.151"
Weight	20# 18#
Grade	P-110